

CLAIMS

1. A method of phosphorodiamidite production which method comprises the steps of reacting a phosphorus trihalide with a dialkyl
5 amine in a polar solvent to form an intermediate compound and subsequently reacting the intermediate compound with a hydroxyalkyl compound and a dialkyl amine, in the presence of a non-polar co-solvent.
2. A method as claimed in Claim 1 in which the phosphorus trihalide
10 is phosphorus trichloride.
3. A method as claimed in Claim 1 in which the phosphorus trihalide is phosphorus tribromide.
- 15 4. A method according to any one of Claims 1 to 3 in which the dialkyl amine is diisopropylamine.
5. A method as claimed in any one of Claims 1 to 3 in which the dialkyl amine is selected from the group consisting of dimethylamine,
20 diethylamine, di-n-propylamine, di-n-butylamine, di-isobutylamine or di-tert-butylamine.
6. A method as claimed in any one of the preceding claims in which the polar solvent is a nitrile compound.
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7. A method as claimed in Claim 6 in which the nitrile compound is acetonitrile.
8. A method as claimed in Claim 6 in which the polar solvent is
30 propionitrile or benzonitrile.

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9. A method as claimed in any one of the preceding claims in which the hydroxyalkyl compound is hydroxypropionitrile.
10. A method as claimed in any one of Claims 1 to 8 in which the
5 hydroxyalkyl compound is methanol or tert-butyl alcohol.
11. A method as claimed in any one of Claims 1 to 10 in which the alkane co-solvent is a C₅ to C₉ aliphatic hydrocarbon.
- 10 12. A method as claimed in any one of Claims 1 to 10 in which the alkane co-solvent is an alicyclic hydrocarbon.
13. A method according to any one of the preceding claims in which the ratio of polar solvent to non-polar solvent is 1:1.
- 15 14. A phosphorodiamidite compound produced by the method of any one of Claims 1 to 13 and having the General Formula (I):
- $$(R_2 N)_2-P-O(CH_2)_n-CN \quad (I)$$
- 20 wherein R is a C₁ to C₄ alkyl, hydroxyalkyl or oxyalkyl group; and n is a whole number of from 1 to 4.
15. A compound according to Claim 14 which is 2-cyanoethyl
25 tetraisopropyl phosphorodiamidite.
16. The use of a compound as claimed in Claim 14 or Claim 15 as made by the method of claim 1 in the synthesis of oligonucleotides.
- 30 17. A phosphorodiamidite compound, substantially as hereinbefore described with reference to the Examples.

18. A method of phosphorodiamidite production, substantially as hereinbefore described with reference to the Examples.

19. The use of a phosphorodiamidite compound, substantially as
5 hereinbefore described with reference to the Examples.

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